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REMARKS

Claims 1, 2, 4-25 and 39 are pending in this application. By this amendment, Applicants cancel claims 33 and 34 and add new claim 39.

Applicants appreciate the Examiner's indication that claims 1, 2 and 4-25 are allowed.

Claim 33 was rejected under 35 U.S.C. 103(a) as being unpatentable over Furukawa et al. (U.S. 6,262,513) in view of Uchikoba (US 2002/0044030). Claim 33 was rejected under 35 U.S.C. 103(a) as being unpatentable over Furukawa et al. in view of JP 61-295025. Claims 33 and 34 were rejected under 35 U.S.C. 103(a) as being unpatentable over JP 2002-217221 in view of Uchikoba. Claims 33 and 34 were rejected under 35 U.S.C. § 103(a) as being unpatentable over JP '221 in view of JP '025. Claims 33 and 34 have been canceled.

Accordingly, Applicants respectfully submit that the prior art rejections of claims 33 and 34 are moot.

New claim 39 recites:

A method of producing a piezoelectric component comprising the steps of:
forming a plurality of piezoelectric elements each having a vibrating portion and a bump on a substrate;
mounting the plurality piezoelectric elements on a mounting substrate having external terminals via the bumps by flip chip bonding such that the vibrating portions are opposed to the mounting substrate;
arranging a resin film on the mounting substrate having the plurality of piezoelectric elements mounted thereon;
sealing the plurality of piezoelectric elements by embedding the resin film between adjacent ones of the piezoelectric elements mounted on the mounting substrate;
hardening the resin film; and
splitting the mounting substrate by dicing to form individual piezoelectric components; wherein
the sealing step includes a step of hot-press bonding in which the resin film is heated, softened, and simultaneously pressed by a roller; and
a height d of one of the plurality of piezoelectric components, a volume V of said one of the plurality of piezoelectric elements including the bumps and the gap between said one of the plurality of piezoelectric elements and the mounting substrate, a number n of

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piezoelectric elements per unit area on the mounting substrate, a thickness t_1 of the resin film, and an average thickness t_2 of the mounting substrate (cross-sectional area/length of substrate) have a relationship expressed by $0.8 < d/(nV + t_1 + t_2) < 1.1$. (emphasis added)

New claim 39 includes the features recited in originally filed claims 1 and 20.

In the Office Action dated June 23, 2005, the Examiner rejected originally filed claim 20 under 35 U.S.C. § 103(a) as being unpatentable over Furukawa et al. (U.S. 6,262,513) in view of JP 7-176565. In rejecting claim 20, the Examiner alleged, "The particular relationship of distance between devices and thickness of devices, as claimed in Claim 19, or relationship between height, volume and number of devices and substrate thickness, as claimed in Claim 20, would have been obvious to one of ordinary skill in the art to achieve a particular desired function of the device." Applicants respectfully disagree.

It is entirely unclear from the Examiner's allegation quoted above, what basis the Examiner is relying upon to reject claim 20. However, it appears that the Examiner may be alleging that the selection of the particular relationship between height, volume, number of devices and substrate thickness would have been an obvious design choice. However, the Examiner is reminded that the U.S. Patent Office Board of Patent Appeals and Interferences has concluded that a rejection on the basis of design choice is clearly improper. In re Garrett, Appeal No. 580-81 (BPAI 1986) (wherein in reversing an obviousness rejection, the Board criticized that the Examiner's statement that the proposed modification would have been an obvious matter of engineering design choice with the explanation that such an assertion is a conclusion, not a reason). Further, the U.S. Court of Appeals for the Federal Circuit has concluded that a proper rejection must provide reasoning why a specific feature is a matter of design choice, and therefore obvious. In re Chu, 36 USPQ 2d 1089 (Fed. Cir. 1995).

Alternatively, the Examiner may be alleging that the determination of the optimum relationship between height, volume, number of devices and substrate thickness would have required only routine experimentation. However, the Examiner is

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reminded that "[a] particular parameter must first be recognized as a result-effective variable, i.e., a variable which achieves a recognized result, before the determination of the optimum or workable ranges of said variable might be characterized as routine experimentation." In re Antonie, 195 USPQ 6 (CCPA 1977) and MPEP §2144.05(II)(B). Neither Furukawa et al. nor JP 7-176565 teaches or suggests anything at all about the relationship between height, volume, number of devices and substrate thickness. Thus, Furukawa et al. and JP 7-176565 certainly fail to teach or suggest that such a relationship between these physical dimensions and characteristics is a result-effective variable.

The PTO has the burden under 35 U.S.C. §103 to establish a *prima facie* case of obviousness. See In re Piasecki, 745 F.2d 1468, 1471-72, 223 USPQ 785, 787-88 (Fed. Cir. 1984). The PTO can satisfy this burden only by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references. See In re Fine, 837 F.2d 1071, 1074, 5 USPQ2d 1596, 1598 (Fed. Cir. 1984). This it has not done. The Examiner failed to cite prior art that remedies the deficiencies of Furukawa et al. and JP 7-176565 or that suggests the obviousness of modifying Furukawa et al. and JP 7-176565 to achieve Applicant's claimed invention.

Instead, the Examiner improperly relied upon hindsight reconstruction of the claimed invention in reaching his obviousness determination. To imbue one of ordinary skill in the art with knowledge of the invention, when no prior art reference or references of record convey or suggest that knowledge, is to fall victim to the insidious effect of a hindsight syndrome wherein that which only the inventor taught is used against its teacher. W.L. Gore & Assoc. v. Garlock, Inc., 721 F.2d 1540, 1543, 220 USPQ 303, 312-13 (Fed. Cir. 1983).

The Examiner is reminded that prior art rejections must be based on evidence. Graham v. John Deere Co., 383 U.S. 117 (1966). The Examiner is hereby requested to cite a reference in support of his position that it was well known at the time of Applicants' invention to provide the features of "a height d of one of the plurality of

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piezoelectric components, a volume V of said one of the plurality of piezoelectric elements including the bumps and the gap between said one of the plurality of piezoelectric elements and the mounting substrate, a number n of piezoelectric elements per unit area on the mounting substrate, a thickness t_1 of the resin film, and an average thickness t_2 of the mounting substrate (cross-sectional area/length of substrate) have a relationship expressed by $0.8 < d/(nV + t_1 + t_2) < 1.1$ " as recited in Applicants' originally filed claim 20, and accordingly, in Applicants' new claim 39. If the rejection is based on facts within the personal knowledge of the Examiner, the data should be supported as specifically as possible and the rejection must be supported by an affidavit from the Examiner, which would be subject to contradiction or explanation by affidavit of Applicants or other persons. See 37 C.F.R. § 1.104(d)(2).

Therefore, Applicants respectfully submit that the Examiner has clearly failed to establish a *prima facie* case of obviousness in the rejection of Applicants' originally filed claim 20, and accordingly, Applicants' new claim 39.

In view of the foregoing amendments and remarks, Applicants respectfully submit that new claim 39 is allowable. Claims 1, 2, 4-25 are allowable as indicated by the Examiner.

In view of the foregoing amendments and remarks, Applicants respectfully submit that this application is in condition for allowance. Favorable consideration and prompt allowance are solicited.

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The Commissioner is authorized to charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account No. 50-1353.

Respectfully submitted,

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